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Consortium on Trade Research

Agricultural Import Demand in Low-Income, Middle-Income, and Centrally Planned Countries

CONSORTIUM ON TRADE RESEARCH: AGRICULTURAL IMPORT DEMAND IN LOW-INCOME, MIDDLE-INCOME, AND CENTRALLY PLANNED COUNTRIES. International Economics Division, Economic Research Service, U.S. Department of Agriculture. FAER-173.

ABSTRACT

During the seventies, demand for agricultural imports increased substantially in low- and middle-income countries and the centrally planned countries. Future growth in such demand will depend on internal policy decisions and domestic and international economic conditions of these countries. State trading, food reserves, and bilateral agreements are becoming increasingly important in international agricultural trade. The third meeting of the Consortium on Trade Research focused on agricultural import demand in the developing and centrally planned countries and the policies and economic conditions affecting that demand.

Keywords: Trade, import demand, projections, state trading, food reserves, stockholding, bilateral agreements, low-income countries, middle-income countries, centrally planned countries.

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PREFACE

This report provides summaries of the papers and discussions at the third Consortium on Trade Research held in Washington, D.C., June 23-24, 1981. The cochairmen of the consortium were T. Kelley White, Economic Research Service (ERS), George E. Rossmiller, Foreign Agricultural Service (FAS), and Vernon Sorenson, Michigan State University.

The Consortium focused on world demand for agricultural imports and the policies and conditions in low-income, middle-income, and centrally planned countries that influence import demand. An overview paper by Dewain Rahe and Cheryl Christensen assessed future global prospects for agricultural trade. Peter Timmer's paper investigated conceptual and empirical problems in analyzing import demand. Three of the papers discussed the demand for food and agricultural products in the Soviet Union and China. Three additional papers focused on factors affecting import demand in low- and middle-income countries. A final set of papers examined the role of bilateral agreements and stockholding policies in agricultural trade.

Copies of the papers, as presented at the consortium or in their final published form, are available from the authors on request.

The preparation of this summary report was coordinated by Charles E. Hanrahan, ERS, and George E. Rossmiller. Summaries of the papers and the discussants' comments were prepared from materials submitted by the contributors. Alan Webb, Trade Policy Branch, ERS, and John Dyck, Asia Branch, ERS, assisted in the preparation of the proceedings.

FOREWORD

The seventies brought about major changes in the pattern and structure of world agricultural trade and U.S. interests in that trade. These changes pose new challenges for U.S. agriculture. The Economic Research Service (ERS) has a major role to play, notably in research and country analysis, in meeting these challenges. In doing so, it must work closely with other agencies in USDA and with university researchers.

The goal of increased interaction between ERS and university researchers was realized in June 1980 by establishing the Consortium on Trade Research. USDA's Foreign Agricultural Service (FAS) joined the Consortium in 1982. The objectives of the Consortium are to:

- o Foster sustained efforts in international trade research which emphasize domestic impacts of policy developments in international commodity markets.
- o Encourage and facilitate interaction between ERS, FAS, and university trade policy researchers.
- o Provide a forum for the exchange of research results and the identification of problems and policy issues requiring research.

The Consortium is a cooperative undertaking between ERS, FAS, and various universities. Membership in the Consortium is mutually agreed upon by ERS, FAS, and initial university participants but is generally open to those who have an interest and are prepared to make a contribution.

JOHN E. LEE, Jr.
Administrator
Economic Research Service

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HIGHLIGHTS

Most of the growth in world demand for agricultural imports in the seventies occurred in the middle-income developing countries and the centrally planned countries. These markets have also been major sources of expanded U.S. agricultural exports during the seventies and early eighties. The third Consortium on Trade Research, conducted by USDA's Economic Research Service and Foreign Agricultural Service and several universities, focused on the global and national policies and economic conditions that affect world demand for agricultural commodities.

Agricultural import demand depends primarily on rates of growth of income and population. Both grew rapidly in the seventies. Future growth in demand will be especially sensitive to world economic growth, which is assumed to slow in the eighties. Variation in estimates of import demand during the eighties depends on one's assumptions about the pace at which income and population will grow. Nevertheless, U.S. agricultural exports will continue to increase during the eighties.

Population, income, and prices help determine grain imports. Grain imports are also the result of decisions of government policymakers in importing countries. Thus, economists need to place the analysis of food imports in the context of a political economy.

Several of the Consortium papers examined the specifics of agricultural import demand in major economic groupings of countries.

The role of USSR state trading and the effects of China's domestic policy on food imports were examined. Because of its size and the secrecy with which it deals in world markets, the Soviet Union is able to manipulate the world grain market and obtain favorable terms. China's food imports have grown rapidly since 1977; they are a direct result of domestic policy decisions to improve the standard of living and to provide material incentives for productivity increases.

While internal political decisions weigh heavily in the decision to import food in China and the Soviet Union, more conventional economic variables explain the variation in import demand in the middle-income developing countries. Evidence was offered that foreign exchange earnings, population growth, and the level of production and stocks are the factors that affect grain imports in these countries.

Trade and domestic policies affecting import demand include bilateral agreements and domestic stockholding. Bilateral agreements tend to increase price instability, especially for nonparticipants in the agreement, and are used more by small countries than large. Stockholding by importing countries may affect import demand through its impact on prices. Evidence was offered that few importing countries should use inter-year stockholding rather than imports to stabilize their grain consumption.

Consortium on Trade Research

Agricultural Import Demand in Low-Income, Middle-Income, and Centrally Planned Countries

WORLD DEMAND FOR AGRICULTURAL IMPORTS IN THE EIGHTIES

Looking Toward
the Future:
Global Agricul-
tural Outlook
and Projections

by Dewain Rahe and
Cheryl Christensen

Discussant:
Ralph Lattimore

Developments during the seventies triggered widespread concern about the ability of the world to produce enough food to meet the increased demand generated by the continued rapid growth in population and income. The seventies were a transition period as global agriculture moved from a surplus position, especially for grains, to a tightened supply situation accompanied by generally declining real prices in agricultural products. Economic Research Service baseline projections to 1985/86 suggest the mideighties will be a period of serious adjustment for world and U.S. agriculture as demand is expected to grow faster than supplies in most major regions.

Supply forecasts are based on 1960-80 area and yield trends and a review of land constraints and productivity factors that might accelerate or slow trend growth rates. Demand forecasts are based on population and income growth rates, expectations regarding changes in taste, grain and oilmeal livestock-feed conversion rates, and our notion of the changing demand for stocks. Demand for U.S. exports is calculated as the difference between the projected foreign supply and demand.

World economic activity is assumed to slow significantly in the early eighties. The mix of increasingly severe inflation and unemployment problems reported in most of the developed and developing countries will be the likely cause of the slowdown. Longer range problems--such as short supplies and rising prices for key inputs; the transition to alternate, generally higher cost energy sources; and slowed labor and capital productivity growth--are assumed to worsen and extend what would otherwise be a short-lived slowdown.

The results of this study suggest that the value of U.S. agricultural exports is likely to increase slightly more than 10 percent per year in the early eighties. By 1985/86, U.S. agricultural exports could reach almost \$75 billion, up from \$40 billion in 1979/80. Higher prices will account for much of

this growth, and U.S. export volume is expected to increase, but the expansion may be limited by production capacity.

Foreign coarse grain production is expected to increase about 2.4 percent annually, or at about the growth rate of the seventies. Foreign demand for coarse grains, however, is likely to increase about 3 percent per year as demand for grain-fed livestock products accelerates. Hence, import demand for U.S. corn and sorghum should increase significantly, 4 to 5 percent per year to about 90 million tons by 1985/86.

Foreign production of wheat is likely to increase at about 2.2 percent per year through the mideighties. Marginally stronger gains in consumption should keep demand for U.S. wheat growing at more than 2 percent per year. Growth in consumption in the developing countries should be substantially faster than growth in production; imports are forecast to increase several million tons per year. The centrally planned countries, however, are likely to import considerably less wheat in the eighties as their crops recover from the weather-related shortfalls of the late seventies. Little change is expected in the developed countries' trend toward greater wheat self-sufficiency.

Foreign oilseed output is forecast to increase 4 to 5 percent per year through 1985/86; Brazil, Argentina, China, and India are expected to account for most of this growth. Much of the South American increase will be used domestically to support expanding livestock industries. Demand for meals elsewhere in the world may increase 1 to 4 percent faster than production and generate large increases in demand for U.S. exports. Exports of meal and the meal equivalent of bean exports could reach almost 28 million tons by 1985/86, compared with 21 million tons in the late seventies.

Cotton production outside the United States is expected to increase by slightly less than 2 percent annually. Use is forecast to increase at nearly the same rate, primarily due to income and population growth in the developing countries, including China, and expansion in textile exports from several Asian countries. Higher prices for petroleum-based synthetics will also tend to encourage cotton consumption. Little increase in use is expected in the developing countries. With roughly equal rates of growth in foreign supply and demand, U.S. cotton exports are expected to average about 7 million bales per year over the first half of the eighties, up from about 6 million in the late seventies but down from the exceptionally high level in 1979/80.

Prospects for continued growth in U.S. agricultural exports of 4 to 6 percent in volume annually have serious implications for American agriculture. There will be potential problems in developing new resources, maintaining or increasing productivity, and market stabilizing activities. The best land resources are already committed to agricultural production, and we do not have 50 to 60 million idle acres in reserve as at the beginning of the seventies. All-out production may occur at

the expense of acceptable conservation practices. Increased costs of inputs, especially fertilizer and pesticides, will make it more difficult to achieve sustained growth in yields. The variability of foreign production is likely to increase as more marginal land is brought into production, and this could have a serious price impact on domestic agriculture--especially the livestock producers. If real prices of grains and oilseeds increase, many small operators will be encouraged to specialize in crop production at the expense of livestock production.

Transportation capacity may limit the expansion of exports in the next decade. The deterioration of the rail system and increased competition from the prospects of sharply increased coal exports will have to be addressed during the eighties if exports are to meet the expected foreign demand.

The ERS baseline is one of several attempts to project the global supply-demand balance and the structure of agricultural trade. Comparing the baseline with other projections is useful for several reasons. Comparisons can suggest a range of results based on different but plausible assumptions about key variables. Also comparisons between the baseline and other projections can provide a basis for thinking about the durability of identified trends. Comparing medium-term projections with longer term results can suggest limitations on identified trends. While longer term comparisons were made in the paper, the summary deals primarily with comparisons of projections to 1985.

Six projections of the global food situation in 1985 were reviewed and compared with the USDA baseline:

- o FAO, Agricultural Commodity Projections 1975-85 (FAO), Rome, 1979.
- o USDA, ERS, The World Food Situation and Prospects to 1985 (WFS), FAER No. 98, December 1974.
- o Leroy Blakeslee, Earl Heady and Charles Farmingham, World Food Production, Demand, and Trade (ISU), Ames, Iowa State University Press, 1973.
- o University of California Task Force Report, A Hungry World: The Challenge to Agriculture (UC), Berkeley, University of California, 1974.
- o International Food Policy Research Institute, Meeting Food Needs in the Developing World: The Location and Magnitude of the Problem (IFPRI), Washington, D.C., 1976.
- o The Global 2000 Report to the President (G2000), Washington, D.C., GPO, 1980.

The studies presented a wide range of estimates of global cereal production and demand. Projections of 1985 global cereal

production and demand range from 1.2 billion tons to 1.7 billion. The older studies' (Heady, University of California) projections of cereal production were below the actual 1980/81 production. The range for cereal demand is even larger at 631 million tons. However, while at least half of the evaluated projections implied relatively low levels of production (in relation to 1980/81), virtually all of them indicated much higher global cereal demand. The strong convergence of demand projections toward high growth, coupled with much less convergence of production projections, lends support to those who hypothesize tightening markets and increasing instability.

There is much more convergence on global production-demand estimates than on the structure of trade. Projections of the cereal import demand for developing regions (Asia, Africa, and Latin America) tend to be polarized, some forecasting a major expansion of import requirements and others projecting imports near or below 1980/81 levels. The main reason for the differences is that import demand in the short run is very sensitive to assumptions about income growth; the USDA baseline more fully captures the effects of increased oil revenue in major OPEC countries. There is also wide variation in estimates of the cereal import demand of the planned economies. Again, the USDA baseline yields the highest projection, but the projection (like all others) is still below the actual 1980/81 import level.

These comparisons suggest several conclusions. First, the USDA baseline tends to show higher import demand in the developed market economies (DME) and centrally planned economies (CPE), primarily because of its economic assumptions. Second, all projection exercises have difficulty anticipating (and frequently interpreting) striking deviations from trend.

The comparisons raise some basic substantive questions. If income trends changed, would there be a major impact on food imports, or would policies to protect consumption moderate the impact? Second, how should the high import demand for the planned economies be interpreted--as an unusual (unsustainable) event or a basic feature of the structure of global grain trade?

The comparisons raise conceptual issues as well. The rapid changes during the seventies placed a premium on being able to generate a range of projections of foreign supply, demand, and trade potential. Forecasts must be capable of revision as conditions change to be useful to policymakers. Ideally, projections would be contingent and defined by alternative scenarios or more general sensitivity analysis. This method has weaknesses, however. When change was genuinely unanticipated (for example, a major policy reversal, a major redistribution of income, the construction of new policies which made imports insensitive), scenarios which were able to forecast the implications of such changes were not forthcoming. Relatively mechanical adjustments of key variables (for example, income growth) will not easily generate scenarios which show the impact of such changes. Hence, while projections produce a

range of results, the range is hard to interpret. Under these conditions, short- to medium-term forecasting will tend to "absorb" changes, leading to updates which differ only marginally from the previous update. As a result, it becomes more difficult to demonstrate to those using forecasts the magnitude of the changes incorporated into them, or the possibility for similarly large changes being incorporated piecemeal in the future.

Comments by Ralph Lattimore: Rahe and Christensen have compared global medium-term projections of agricultural production, consumption, and trade with a recent USDA baseline forecast. The conclusions of these studies are, in turn, measured against some long-term projections.

The usefulness of this exercise is without question. A major lesson the profession ought to have learned from the decade of the seventies is that consensus or composite forecasts are always more useful than individual studies. Consensus forecasts are more useful in the sense that they are usually more accurate. They are also more useful in bringing together a broader perspective of the factors likely to impinge on the future market outcome.

There is one area--the future trend in real prices--where the studies diverge rather widely, and unfortunately, this comparative study does not clarify the issue. The baseline projection draws upon results of annual econometric models in which nominal agricultural prices are used; whereas studies such as Global 2000 rest on models such as the USDA Grain-Oilseed-Livestock (GOL) model which is denominated in real prices. When price projections from such models are compared, they often differ widely, even when the quantity (supply, demand, trade, and stocks) scenarios are comparable. The fault probably lies with both types of models. Many annual econometric models appear tied to the money illusion. Considerable care is usually taken to ensure that the domestic portion of the model is consistent in this respect (for example, homogeneity is assured with respect to domestic supply and demand) but not the export-import sector. This may be a serious omission for commodities like wheat or coarse grains where market influences on the price level are crucial.

On the other hand, longer term structural models of the GOL type appear to be too strongly influenced by the recent past. That is, if one examines the real price trend scenarios from studies done during the seventies, there appears to be a high correlation between that trend and the actual trend of the 10-year period immediately preceding the forecast. Post-World War II data, truncated in 1975/76, exhibit an upward real price trend for major agricultural commodities, and studies like Global 2000 reflect that trend. However, taken as a whole, it is clear that real price movements over the seventies have preserved the downward trend that they have exhibited for the last 100 years. This may be an important factor in tempering

the extremely bullish medium-term market outlook currently being portrayed for grain producers.

A second point relates to the credibility of the supply forecasts of the various studies quoted. In many of the studies, the production projections amount to little more than trend extrapolation. A great deal more is now known about technical progress, about investment in the supply resource base, and about producer incentives and their relationship through policy to world prices but these areas are seldom addressed adequately in global forecasting work. Furthermore, we are keenly aware of the cyclical behavior of livestock supply and of wide short-term fluctuations in exogenous factors (weather, income, interest rates, exchange rates, and political factors). Yet, with few exceptions, we persist in presenting point forecasts of monotonic trend lines. I think we presume too much in assuming that noneconomists (and nonmodeling economists) will understand the forecast context within which the projections are made. More attention needs to be paid to a format for presenting projection results reflecting cyclical tendencies and reliable statistics.

General discussion: Pearson and Sorenson asked about recommendations for future projections work. Christensen suggested that forecasts need to be explicitly contingent on key assumptions built into the model, and that there is more to gain by building models with links to other sectors of the economy than by building more sophisticated single sector agricultural models. Desai felt that the baseline projections needed to recognize the difference between the food use and feed use of grains. This difference is extremely important for determining the volatility of demand and the size and structure of buffer stock programs. Rahe pointed out that the baseline looked only at food grains and was a point of departure for further analysis, and not the final result.

Conceptual and
Empirical Problems
in Estimating
Import Demand

by C. Peter Timmer
and Robert Schwartz

Discussant:
Andrew Schmitz

Grain imports are not a direct function of prices, but the result of policy decisions based on the objectives and constraints of government policymakers in importing countries. Explanations of grain imports are found in an examination of the domestic political and policy framework of each country's food economy.

There are three major sections in the paper. The first section examines the workings of the grain-marketing system with particular attention to the linkages across commodities and across end uses and the forces of change at work within the system. This section provides a way of looking at the world food system, which allows us to understand where the linkages are, where they might be strengthened, and the ramifications of strengthening them.

The second section provides a theoretical foundation for the discussion of microeconomic and macroeconomic linkages. This section is an attempt to understand some of the new macroeconomic literature that is concerned about microfoundations of macroeconometric models, the role of rational expectations,

and the role of money. Much of the new macroeconomic theory addresses, at a methodological level, the problems encountered in the global macromodels for estimating grain imports. This section links macrodemand patterns and microproduction patterns through markets and price formation up to the macroeconomic linkages.

The third and final section is on political economy, emphasizing that farmers will produce more if prices of their output are raised, but consumers, particularly, very poor consumers, will consume less. Most Asian countries have chosen to deal with this dilemma with a wide variety of interventions from input subsidies to market subsidies and dual price shops. In almost all cases there are direct or indirect grain import ramifications. Hence, food imports are directly affected by the mechanisms by which countries come to grips with their basic political economy problems with respect to food. That is why imports are a policy variable in a general equilibrium model.

This suggests that imports are exogenous from an economist's point of view. This may be true in the very short run. In the longer run, foreign exchange constraints, changes in the money supply, expenditures on other items in the budget, among other factors, have economic ramifications for the decision to import grains.

This paper provides a perspective on how we view grain imports:

- o At the microlevel more disaggregation is needed. The production side poses no major problems, but the study of variation in demand patterns needs more work.
- o There is a need to join in the work and debate of macroeconomic theorists who are trying to understand the role of expectations, the role of money, and the linkages between the macroeconomic and microeconomic sectors.
- o These two sectors must be put together in a political economy framework which looks at the objectives and the constraints facing policymakers in the grain import decisionmaking process.

Comments by Andrew Schmitz: The paper by Timmer and Schwartz discusses an important subject area, that is, estimating import demand functions generally and U.S. products specifically. Two crucial issues remain. Should one estimate import functions directly or estimate domestic demand and supply functions and derive the excess demand equations from these? And, given limited budgets, should detailed analysis be done on individual countries or should the focus be on an aggregate basis? In terms of the former issue, research should be done which takes a particular problem and estimates functions using both approaches. This would allow one to determine how sensitive the results are to equation specification. Concerning the latter issue, both approaches are needed. However, relatively

more emphasis should be placed on the aggregate approach since most trade policy analysis requires more than knowledge of detailed import functions for one or two countries.

Current research on estimating import demand functions is encouraging because of data availability. Since the early seventies, prices and quantities have moved sufficiently in different directions so as to give a regression surface capable of being estimated.

Timmer responded by making two points, neither of which had been dealt with in the paper. First, the paper did not have a literature review of a discussion of grain import functions. Even if there had been time to do it, according to Timmer, it wouldn't make sense to estimate import demand functions directly for many of these countries. A political economy methodology had to be used as a starting point rather than the methods developed in existing literature. The second point not dealt with in the paper was demand estimation. Another paper goes into greater depth on this subject.

General discussion: Lattimore asked to what extent additional food aid and a food insurance scheme were substitutes for one another. Timmer observed that the two policies spoke to different issues. Food aid is concerned with the general level of nutrition in developing countries, whereas food insurance is designed to handle problems associated with food shortages and production variabilities. It was Timmer's judgement that most countries would choose food aid if given the choice.

In response to a question on how to estimate world aggregate demand, Timmer said that once a major policy shift becomes apparent, the impact on demand is predictable. For example, once it was clear that the Organization of Petroleum Exporting Countries (OPEC) would be successful in increasing the price of oil, the effect on demand was completely predictable.

Robert Schwartz added that predicting political decisions will be critical to accurate estimation of aggregate demand in the coming decade. Determining the impact of internal forces on the political decisionmaking process will be the key element in this effort. Schwartz said more resources will have to be devoted to understanding the political decision process.

Andrew Schmitz asked whether one could include this decision process in a model of a centrally planned economy such as the Soviet Union and, if so, how would it be done. Timmer felt it was possible, at least for China. It would be necessary to put together the microside of the Chinese agricultural economy and simulate future growth to see where tensions will develop. This information can be fed into the macrosector to obtain a notion of the pressures confronting Chinese policymakers. This method will allow researchers to understand the choices confronting decisionmakers, but it won't predict how they will respond.

Sorensen questioned Timmer's contention that the pattern of food consumption by income groups is the same around the world. Sorensen felt that food consumption by similar income groups differed substantially in Asia, Africa, and Latin America. Timmer agreed, but stated that in a broader sense the same basic pattern emerges. As people's incomes rise, their food consumption gradually shifts away from grains and root crops to meats and poultry. Urbanization is a major force in this development.

INTERNAL POLICY, DECISIONS, AND FOOD IMPORT DEMAND IN CENTRALLY PLANNED COUNTRIES

The Impact of Soviet State Trading on the Functioning of International Food Markets

During the seventies, the Soviet Union became a large, though erratic, importer of grain. Because USSR trade is carried out by means of a state trading organization, the possibility that the Soviet Union is able to capture an inordinately large share of the gains from its grain trade with the United States has been raised.

Joseph C. Brada

Discussant:
Alex McCalla

One potential source of advantage for the Soviet Union is the ability to implement administratively the equivalent of an optimal tariff through the import decisions of the state trading organization. Thus, the restriction of imports to improve terms of trade does not invite the type of retaliation that would result if a tariff were imposed to achieve the same end. Moreover, even if a market economy were to retaliate with a tariff of its own, there is no certainty that the offer curve of the state trading country is such that the market economy's welfare would increase as a result. This view of USSR trade behavior has been challenged by an alternate view which holds that trade decisions of the Soviet Union are relatively rigid and that USSR trading organizations are thus vulnerable to exploitation by market economies and unlikely to restrict trade in order to improve their terms of trade.

A second inequity in the distribution of trade is that the instabilities of USSR grain production are passed on to Western consumers and producers while Soviet consumers are shielded from the effects of these fluctuations.

The U.S.-USSR grain agreement is evaluated to see whether and how it may influence the ability of the USSR trading apparatus to extract excessive gains from trade. The trade agreement requires the Soviet Union to purchase at least 6 million tons. Quantities greater than 8 million tons require government-to-government negotiation. If the Soviet Union were acting to restrict imports and improve its terms of trade, then the provisions of the grain agreement tend to limit the Soviet Union's ability to extract excess gains from trade with the United States. Moreover, the provisions also reduce the ability of the Soviet Union to "hide" the true location of its offer curve. On the other hand, if Soviet trade behavior is characterized by inflexibility, then the provisions of the grain agreement tend to enhance the ability of the United States to capture a disproportionate share of the gains.

There is insufficient evidence to conclude that the Soviet Union passes all of its output instability on to international markets. Although production is unstable while human consumption has leveled off considerably in the post-1970 period, use of grain for animal feed has continued to fluctuate widely. Moreover, fluctuations in USSR import demand may not be correlated to demand fluctuations in other importing countries, thus stabilizing the world market.

It appears that market economies are able to trade with state trading countries without eliminating market mechanisms by adopting measures which protect markets from the abuse of state trading organizations.

Comments by Alex McCalla: As Mr. Brada pointed out, his paper is far less ambitious than the title indicates. His discussion concerns state trading in a bilateral framework with emphasis on the Soviet Union rather than looking at state trading in a general multilateral context. The paper identifies two major reasons for the recent interest in state trading agencies: the contention that state trading allows the Soviet Union to extract monopoly gains, and that USSR participation in the market has increased price instability.

Brada maintains that monopoly gains result because the Soviet Union is a large purchaser in the world grains market and is capable of manipulating the market in its favor, and because it can obtain better terms in commercial transactions because of its secrecy. It would be an interesting empirical question to determine whether USSR purchases differ over the course of a year. If the Soviets anticipate an upward trend in prices, one would expect them to buy early; if they anticipate a downward trend, purchases would be delayed until later in the year.

The fact that Soviet participation in the market has increased price instability is not necessarily related to state trading, as Mr. Brada correctly points out. An important issue in this regard is whether state trading in the market exacerbates or dampens the potential impact of internal changes in production. Does state trading affect the behavior of the internal market?

Brada has provided us with an interesting and useful paper as a bilateral analysis of state trading. The next step is to generalize it to a world of state traders in which 95 percent of the grain traded on world markets is handled on one end or the other by a state trader. This environment is far different from that of the single state trader in an open world market characterized by Brada.

A number of questions are left unanswered about how state trading affects the market in general. How does one identify or characterize an import demand or excess supply equation for a state trader? Does state trading as an institutional framework affect grain trade?

It might be better to look at state trading within the context of the country and the world grain market. State trading is an integral means of instituting domestic policy. As such, it may be more useful to consider how policy issues affect the import demand of a country regardless of the institutional setting.

Brada responded that it would be a simple empirical question to test whether Soviet grain imports are more difficult to predict than imports of other countries. All that would be required

would be a comparison of the performance of the futures market in predicting prices prior to 1972 with the period following 1972. A poorer performance since 1972 would indicate that the secrecy of Soviet commercial transactions has, in part, prevented the futures market from anticipating world grain import demands.

Brada also pointed out that the critical issue was not the monopoly power of a state trader compared with the rest of the world's countries--many of which are also state traders--but the implications which state trading has for the domestic market. How does a central purchasing agency affect the response of consumers and producers to changing world market conditions?

General discussion: Lattimore questioned the characterization of the United States as a free trader, when the United States had engaged in many of the practices and policies carried out by state traders. Brada agreed that the United States had been guilty of many of these practices, but explained that these were clearly visible in U.S. laws and trade regulations. The policies of state traders, on the other hand, are especially detrimental to world grain markets because they are concealed as policies of the trading agency.

Andrew Schmitz contended that a state trading agency is far more powerful than Brada had indicated. He reasoned that in the formulation of trade policy, the government has only to maximize the welfare of the trading agency, whereas in an open market environment, the government has to take into account the welfare of consumers, producers, and grain-trading firms. By eliminating these other factors from the policy formulations process, the state trader gains a large degree of power and independence.

Padma Desai questioned the role of the state trading agency in keeping Soviet import intentions secret. She observed that the Soviets themselves often do not know the size of their crop or what their import needs will be.

Food Import Demand
in the Soviet
Union

by Anton F. Malish

Discussants:
Yuri Markish and
Padma Desai*

The Soviet Union remains the principal model for a national plan that, on the basis of commands and directives from superiors, dictates not only what, when, and how much will be produced, but which entities in the economy will execute the directives. Agricultural production is based on consumption norms established for various products, input-output analysis, and the directives which are then distributed from Gosplan (the State Planning Committee) to the republics, oblasts, rayons, and farms. A considerable reverse flow of information--requests for fertilizer and farm machinery, for example--also occurs.

*Padma Desai discussed this paper and the following paper by Surls. Her comments and those of Markish follow the summary of Surls's paper.

The USSR uses price incentives to encourage production and to assure sales of particular products to the state. While higher prices are used to attract above-plan production, Soviet internal policy dictates that retail prices for staples not be increased. Thus, retail price subsidies are required, and increasing Soviet incomes have greatly increased the desire of Soviet citizens to upgrade their diet with meat, dairy products, and other high-quality foodstuffs.

The USSR's failure to meet demand for such foodstuffs has led to new developments in agricultural policy. A new "food program" is being implemented in order to create an integrated agro-industrial complex to better coordinate the planning, financing, and management activities from farm to store and to reduce inefficiencies, bottlenecks, and waste.

The Soviets have also adopted some changes in government and party organization to improve coordination of activities. Perhaps most significant, however, was a new decree to encourage production, especially of meat, on private plots. Under a contract arrangement with state and collective farms, plot holders can keep many more animals than before. The decree is being likened to Lenin's new economic policy of the twenties in the encouragement it gives private agriculture.

While the new 5-Year Plan (1981-85) for agriculture (the eleventh) is more realistic than the preceding 5-Year Plan, it still seems overly optimistic in its targets for grain and meat production. The USSR also recognizes the protein deficiency in their livestock rations, but has done poorly in increasing production of sunflower and soybeans. During the next 5 years, therefore, the USSR will still be a major importer of grains.

If production goes according to trend (but still less than plan), USSR grain imports might still average about 29 million tons per year. It is also likely that the Soviets will derive the bulk of their increased feeding of oilmeals from imports, and by the end of the plan period they should be feeding over 8 million tons per year.

As a result of the U.S. embargo, the USSR will probably want to fill their grain and oilmeal import requirements from sources other than the United States. Nevertheless, even treating the United States as a supplier of last resort, and assuming a best case scenario for production, the USSR will still be a major purchaser of U.S. products. During the next 5 years, projections indicate they would need about 40 million tons of U.S. grain, and, if USSR harvests are poor, even more. Imports of soybeans and meal should greatly increase, from about 3 million tons (in meal equivalent) over the past 5 years to as much as 8 million tons, as the USSR tries to become a more efficient feeder. U.S. animal and plant technology will also remain attractive products. Thus, even under a best case scenario, USSR food import demand will remain high during the new plan period, and the United States can expect to participate significantly in the trade.

Domestic Policy and
Chinese Food Import
Demand

by Frederic M. Surls

Changes in domestic economic policy have been the major force behind the rapid rise in Chinese food imports since 1977. Efforts to raise living standards are both a basic political commitment of the new leadership and an essential part of efforts to raise productivity throughout China's economy by providing greater material incentives.

Discussant:
Padma Desai

China's imports of food are used mainly in urban/industrial areas, where they supplement government purchases of food from the countryside. In the case of grains, for example, while imports in the last several years have amounted to only about 4 percent of national production, they meet perhaps one-third of the requirements of China's urban and industrial population.

Food import demand is therefore closely linked to the supply of, and demand for, government supplies of foodstuffs. New policies implemented in the last 3 years have led to significant shifts in both supply and demand. Demand for government supplies of foodstuffs has increased because of greater incomes in the urban/industrial sector of the economy and because population growth in this sector has been less tightly controlled than in the past. At the same time, government supplies of food, particularly of grains, from domestic sources have shown only limited growth despite significant increases in production. For example, while grain production increased by 35 million tons between 1977 and 1980, government grain purchases increased by only 4 to 5 million tons. This suggests a marginal procurement rate of only about 15 percent, well below rates in earlier years for which data are available. While gross procurements grew slowly, net procurements of grain may not have increased at all as resales of grain by the government to areas shifting to cash crop production were rising. In addition, the Government was also making a greater effort than in the past to provide emergency supplies for areas hit by natural disasters such as the 1980 drought in parts of northern China.

Growing demand, slow growth of procurements, and increased resale to rural areas have all increased pressures on state supplies of grains and other basic foodstuffs. A relaxation of constraints on food imports was therefore a necessary condition for implementing domestic economic policies.

Despite higher food imports, China is not committed to international specialization and rising agricultural imports. Primary interest likely continues to be in industrial imports. Export prospects are uncertain, and attitudes toward debt are still conservative. Therefore, trade policy appears to favor holding the line on agricultural imports.

Policy favors restraining agricultural imports through a two-stage program of import substitution. Higher grain imports permit an expansion of cash crop areas and a gradual reduction in imports of cotton, sugar, and oilseeds. At the same time, investment in areas expected to produce a large marketable surplus of grain will raise the national marketing rates as

well as supplies available to the Central Government. This, the Chinese hope, will prevent further increases in grain imports.

Comments by Padma Desai: Anton Malish's paper begins with a brief and lucid discussion of the manner in which the Soviet agricultural production plan is formulated and, in particular, the procurement targets are handed down to the farms.

The relevant questions are: What role do incentives play in target fulfillment, and second, how freely can farm managers decide on the level, structure, and location of crops in a collective farm so that targets are fulfilled?

The role of incentives in stimulating production and ensuring sales of particular products has steadily increased from 1965. As Malish notes, the purchase prices of agricultural produce have gone up by 50 percent in the 15 years since then. More noteworthy are the incentive measures of the decree of January 1981 aimed at encouraging livestock raising on private plots. The ceiling on private livestock is raised with the further provision that the "fattened livestock, poultry, and milk produced on private plots can be sold to state and collective farms, who, when reselling these products to the state procurement organizations, can count these items in their plan fulfillment requirements." In our judgment, this provision of the decree fits in with the accelerating plans to develop agro-industrial complexes so that livestock products such as milk, beef, eggs, and poultry are produced hygienically and economically in large-scale production units rather than on small private plots.

What freedom do managers have in farming decisions? It would seem that they are still hemmed in by many targets handed down from higher up in the chain of command. Even if managers were free to decide on crop plantings, structure, and location, the output performance in our judgment would continue to be adversely affected by the fact that in Soviet practice, each team (zveno) in the collective is assigned a given task in the succession of activities from plowing to harvesting without being responsible for the entire sequence on a given area in the collective. This contrasts with the Hungarian practice of beznaryadnoe or the autonomous zveno, where the team carries out all tasks from beginning to end and is rewarded for performance.

In his conclusion, Malish forecasts that the Soviet average grain import requirement during 1981-85 will be 29 million tons. The underlying assumptions are that the USSR will switch somewhat from grain to fodder and within grain, from wheat to coarse grain. Other things being equal, this will require less grain; however, this will be counterbalanced by the need to build grain reserves. Since Malish does not state the methodology for the estimates, it is difficult to check their accuracy. Also, no indication is given of the possible weather patterns. True, the USSR has imported 30 to 35 million tons

of grain from July to June in marketing years 1979 and 1980. However, these were disastrous crop years. From that perspective, annual imports at 29 million tons may turn out to be a bit on the high side.

I shall restrict my comments on Frederic Surl's' paper to two areas. It seems that in the coming years China will emerge as a leading importer of wheat and a substantial importer of soybeans and, perhaps, of cotton. Given China's conservative foreign debt policies, it would be instructive to know what proportion of foreign exchange earnings will be used in the near future by these imports. Second, with rising procurement prices and fixed prices to consumers, the subsidy rises from year to year. One wonders about the current cost of this subsidy to the state budget.

Comments by Yuri Markish: The USSR does not appear to be planning the significant increases in agricultural investment needed to overcome the severe deficiencies in soils. Most USSR agricultural soils are low in natural fertility; about 55 percent of them are deficient in mobile (active) phosphorus. Poor farming techniques in fertile areas such as the Ukraine have reduced yields there. Weed and insect infestation is spreading and vast territories now harbor long-term diseases or suffer from wind and water erosion. Soviet fertilizers have poor soil mobility, and carelessness in distribution and application further reduce their benefits. Half of the grain crop receives no fertilizer at all. The USSR has little capability in state enterprises for increasing production of the high-technology fertilizers, pesticides, and herbicides necessary to increase yields. Therefore, the new developments in agricultural policy, the "food program" and organizational changes, for example, are unlikely to result in significant output increases without a radical redirection in Soviet priorities. Even then, it would take decades to bring about an improvement in soils and develop the needed infrastructure in remote areas.

Accordingly, though the USSR might prefer to buy from other sources, they will likely return to the U.S. market since it offers large volumes of high-quality produce, which can be transported cheaply and efficiently, at reasonable prices.

INTERNAL POLICY, DECISIONS, AND FOOD IMPORT DEMAND IN DEVELOPING COUNTRIES

Food Imports, Government Policy, and the Balance of Payments: The Case of Wheat in Egypt

by Grant M. Scobie and Alberto Valdes

Discussant:
G. Edward Schuh

In a number of developing countries, food imports constitute a significant share of total import expenditures. The types of commercial and exchange rate policies that are pursued often result in a chronic shortage of foreign exchange. Limited supplies of foreign exchange have to be administratively allocated to competing classes of imports. The amount of food imported, usually by a state trading authority having exclusive rights to foreign trade, depends on the strength of a country's external account and the balance of payment adjustment mechanism. Further, the level of those food imports will depend on the domestic policies which the government uses to influence production and consumption.

These features are combined in an econometric model of Egyptian wheat imports. Egyptian Government policies are represented by three key instruments: the size of the subsidy to domestic wheat consumers, the size of the tax or subsidy between producers and consumers, and the tax on cotton exports. The latter is important as cotton production competes with wheat. A rise in the cotton tax would tend to encourage wheat output at the expense of cotton while reducing wheat imports. Further, cotton traditionally has been a major source of export revenue, so that Egypt's command over foreign goods and services, including wheat, is partly determined by the amount of cotton exported. Wheat shipments under concessionary terms have been both important and variable in Egypt; they are included explicitly in the model.

Egypt has subsidized the domestic consumption of bread for nearly four decades. The size of that subsidy and its cost to the treasury grew dramatically in the seventies. The study finds that the elasticity of transmission between changes in real world and domestic prices of wheat is rather high (about 0.5). While consumers have been insulated from some of the year-to-year variability in the world prices, trends in those prices have been reflected in the domestic price. The fall in the real world wheat price in the late seventies was directly transmitted to Egyptian consumers where the real domestic price fell markedly, accounting for much of the rise in consumption and imports.

Largely because of the political importance of the consumer subsidy, the import elasticity of demand for wheat is low. This is true for both foreign exchange and the world price. A rise in the supply of foreign exchange has a very limited impact on wheat imports; the marginal propensity to spend on imported wheat out of foreign exchange is low. For this reason a compensatory financial scheme such as the "food facility" introduced by the International Monetary Fund is likely to have little impact on the imports and domestic consumption of wheat in Egypt.

On the other hand, because of the relatively low response of wheat imports to world prices, the quantity of imported wheat

is maintained through drawing down reserves of foreign exchange, increasing foreign borrowing, or through reducing the imports of other commodities such as raw materials and capital goods. Egypt's food policies have a potentially destabilizing effect on output and employment in the nonfarm sector through their impact on the level and consumption of imports. Consequently, the "food facility" may acquire its greatest benefits through enhancing the stability of imports of raw materials and capital equipment and encouraging faster and more consistent growth in the nonfarm sector.

Comments by G. Edward Schuh: Economists need to specify formal behavioral models of the governmental sector rather than ad hoc specifications of policy formulation. The paper by Scobie and Valdes is better than most in meeting this need. It is possible to think in terms of a demand for policy and a supply of policy. Although policy determinants are implicit, there is a need to capture these somehow in models of underlying government behavior. A number of other points raised in the paper need clarification or elaboration. First, results showed serial correlation in the residuals, the implications of which need to be examined more thoroughly. Second, the authors observe that IMF funding would be used to finance nonfood imports. This observation is important and deserves more emphasis. Finally, the distinction between degree of protection and degree of insulation needs to be pursued.

General discussion: Comments focused on the IMF food import facility and on modeling government policy. Josling pointed out that the IMF facility was not just a food import cost facility. Pearson recommended looking at the earlier literature of Hollis Chenery and others. Lattimore questioned the use of the ratio of the world price of wheat to the world price of cotton to specify the exchange rate.

Grain Imports by
Middle-Income
Developing Coun-
tries: Economic
and Political
Factors Affecting
Import Demand

by Cathy L. Jabara

Discussant:
Colin Carter

The middle-income developing countries are of interest in international grain trade because they include countries which are newly emerging cash markets for agricultural exports as well as well-established markets.

The middle-income developing countries are by no means a homogeneous group. They include Sudan, Egypt, and Indonesia on the low end of the GNP scale and the Republic of Korea, Taiwan, and Venezuela on the high end. Some of these countries have experienced particularly rapid increases in grain imports since the midseventies following OPEC petroleum price increases. Others have increased grain imports because of available supplies of gifts and concessionary sales. There are also regional differences in production and consumption of grains.

Government policies that intervene in the pricing and marketing of grains are important tools used by middle-income developing countries to protect consumers from high prices and to promote wheat production. Consumer prices are subsidized in many of these countries. Several countries also operate two-tiered

pricing schemes in which producers receive higher prices for grains than equivalent consumer prices. The result of such intervention is that, with exceptions of Taiwan, Chile, and Venezuela, state trading and/or restrictive licensing arrangements are required for grain importation among middle-income developing countries.

To analyze the influence of supply and demand factors that affect grain imports, net import demand functions, as described by Abbot, were fitted to cross-section data for 20 middle-income developing countries from 1976 to 1979. Functions were estimated for rice, wheat, and corn imports. Countries were separated into wheat-producing and nonproducing categories for the wheat import demand estimation. Inclusion of variables in the estimated equations was on the basis of traditional supply and demand theory.

Results of regression by ordinary least squares suggest that foreign exchange earnings, the level of production and stocks, and population growth are the most important factors which affect grain imports among middle-income developing countries. In addition, increased commercial livestock and poultry production is an important determinant of import demand for corn. The results of this analysis also indicate that government intervention in pricing, marketing, and trade is important in determining import levels, and that movements in international prices do not significantly affect import demand.

Comments by Colin Carter: Most of the participants at this meeting have agreed it is extremely difficult to estimate grain import demand relationships. However, Cathy Jabara has been ambitious enough to attempt to do so.

The objective of her paper is to estimate net import demand functions for wheat, corn, and rice for middle-income countries by combining cross-sectional and time-series data. This is an important relationship for us to understand, as these importing countries account for approximately 40 percent of U.S. exports of wheat, rice, and coarse grains.

An initial comment, which is related to our discussion yesterday, is that this paper is not tied in with previous work in the area. A review of related empirical work would have been useful not only as background information but also to serve in support of the particular functional form chosen in this paper.

The introductory and concluding comments in the paper argue that the formation of OPEC resulted in foreign exchange shortages and consequently strained grain import levels. Also, a further distinction is made between those countries which export primary products from those which do not. It is then stated that those countries which export manufactures rather than primary products have been affected by OPEC prices on a larger scale. This statement is not empirically supported in the paper. In fact, the estimated coefficients show foreign exchange to be more of a constraint in wheat-producing countries

than in nonproducing countries. This is particularly surprising since about 40 percent of the wheat-producing countries export petroleum.

One important conclusion of this paper is that income is not a significant factor explaining wheat import demand. What then explains why our exports to these countries have grown so rapidly? Can it all be due to population growth? There is possibly a multicollinearity problem between income and population.

Two demand equations for wheat and one each for rice and corn are estimated in this paper. The own price variable is statistically insignificant in all four equations and is of the wrong sign in three of the equations. These price relationships are a bit of a mystery. One explanation worth further inquiry is that exchange rate changes may have masked the effect of the price changes measured in U.S. dollars.

In conclusion, the empirical results of this paper are far from being statistically powerful. They do not do a good job of explaining recent demand growth and, unfortunately, do not help us in understanding the extent of future growth of grain imports.

General discussion: Explanation of the sources of growth in the import demand of middle-income countries dominated the discussion. Magiera noted that income was a significant factor in explaining import demand in a study of 50 countries. He suggested that concentrating only on middle-income developing countries probably does not allow for large enough variations in income to capture the effect. Bredahl observed that similar methods used for forecasting in the seventies consistently underestimated demand. Countries with rapidly expanding population and income, such as Mexico, are experiencing increases in per capita consumption of grains. Therefore, it is crucial to analyze per capita changes in demand. Bredahl also suggested that foreign exchange limitations are not significant because of the liberal policies of the United States and Canada in guaranteeing bank loans for grain purchases. Valdes and Magiera thought the analysis was dominated by policies and practices of certain countries. Indonesia's policy and practice would tend to dominate the results for rice and Egypt's policy and practice for wheat. Valdes felt that Jabara's single equation approach was difficult to justify, and Desai suggested the use of different functional forms (for example, log-linear as well as linear) to conduct the analysis of import demand.

Growth of Agricultural Protectionism in South Korea:
Trade and Welfare Effects

by Kym Anderson

The rapid industrialization of South Korea since the midsixties has been accompanied by considerable growth in agricultural production. Agricultural trade and domestic agricultural prices have been heavily influenced and often fully determined by government policies in these years. This paper first examines the extent to which those policies have caused producer and consumer prices of agricultural products in South Korea to differ from prices at the country's border over the past 25 years. It then

Discussant:
John H. Dyck

uses the comparison data to estimate empirically the effects of those policies, as compared with free market policies, on the country's agricultural trade and economic welfare in the late seventies and, should present policies continue, in 1990. The extent of growth in agricultural protection in South Korea is as rapid as, and not far behind, that in Japan, and the per capita welfare effects of this protection in the late seventies appeared to be almost as great as in Japan and greater than in the European Economic Community (EEC). The paper concludes with some suggested alternatives to present policies that could more efficiently achieve the stated objectives of boosting both farm incomes and food security and, at the same time, improving the welfare of domestic consumers and overseas producers.

Comments by John H. Dyck: Agricultural protectionism always entails costs for an economy, particularly for one with a growth strategy based on the export of manufactured goods. Anderson demonstrates this quite well for Korea, and provides valuable quantitative measures of welfare effects that aid in assessing the importance of protectionism's effects there. While South Korea is, in itself, an important market, its protection of food grain and livestock production is typical in varying degrees of other Asian countries, and Anderson's critical examination of agricultural policies should be of interest for those countries as well.

The paper undertakes the difficult task of comparing products and prices within and outside Korea, and necessarily performs a partial equilibrium analysis with some simplifying assumptions, all clearly stated in the paper. Without finding fault with this approach, there are some aspects of the analysis which might better be done differently.

Examination of Korean preferences for various types of rice, beef, and other commodities may be important empirically. Calculation of rates of protection is possible by use of closer substitutes for domestic Korean products than Anderson uses, California medium-grain rice and Australian boneless beef, for example. Results of such calculations suggest that his paper overestimates protection of rice and underestimates protection of beef. This kind of examination might also sometimes show a greater impact on prices than would a look at all types of the commodity together. This could be the case concerning the Koreans' trade barriers. The increased demand for this rice might increase prices considerably, and thus nullify some of the advantage that Korean consumers might expect to gain from reduced protection of domestic agriculture.

The paper's projections to 1990 rest on the assumption of unchanged trends and prices. This is a legitimate assumption, but unrealistic enough that Anderson's discussion of the effect of Korea's protectionism on exporting nations (that is, the United States and Australia) and the tentative conclusion that both are hurt may be premature. Whether the United States stands to gain or lose overall depends greatly on the growth

of Korea's livestock industry and the derived demand for feed-stuffs. In this connection, the rapid changes in technology and size of operation of the pork and poultry industries may make extrapolations from conditions in the seventies to the year 1990 inappropriate.

General discussion: Lattimore asked about the impact of the end of concessionary grain sales to Korea in 1981 and its effect on the policy process. Anderson pointed out that Korean leaders had long known that such sales would end, and that they might now attempt to diversify their sources of supply. Anderson responded to specific comments by Dyck. Separating the beef and dairy sectors from the pork and poultry ones may well show a turnaround in the comparative advantage of the latter. As to why Korea has changed its policy, Anderson stressed real wage changes which accompanied the overflow of farmers and agricultural laborers in urban jobs. Real wages increased at the rate of 30 percent per year when migration was at its peak.

TRADE AND DOMESTIC POLICIES AFFECTING IMPORT DEMAND

Bilateral Agreements as a Response to Emerging International Market Conditions
by John Nuttall and Vernon Sorenson
Discussant:
Jimmye Hillman

The recent interest in bilateral agreements in the United States has its origins in conditions that developed in the early seventies. World markets expanded rapidly and longstanding excess reserves of major traded commodities disappeared. Large-scale purchasing by the Soviet Union and a number of other countries in 1973 resulted in sharp price increases that stimulated a broad-based interest by consumers and other groups in stabilization of U.S. food and commodity prices. The Soviet purchases were singled out as a direct cause of the sharp price changes; the United States responded by seeking a bilateral arrangement that would help to moderate the unpredictability of these purchases and their impact on the market.

A conceptual evaluation of the impact of bilateral agreements on world markets leads to the conclusion that under certain conditions bilateral agreements will tend to increase market instability. This occurs if both prices and quantities are rigidly fixed and instability is exacerbated, as a larger proportion of the market is tied up in bilaterals. If only quantities are fixed the degree of price instability will be determined by operating practices of countries that participate in bilateral arrangements. The most important objective sought by countries that enter into bilateral agreements is to stabilize quantities traded. Importers want to assure supplies, and exporters want assured demand for their product. In either case, the extent to which this objective can be achieved depends on the degree of coverage of traded quantities and the flexibility afforded by the terms of the agreement. Neither importers nor exporters can achieve full stability in supplies or outlets unless their total needs or shipments are covered by inflexible arrangements on specific quantity. Short of this, competitive bidding to displace either purchases by the importer, sales by the importer, or sales by the exporter is a possibility.

In terms of existing market and institutional relationships, it can be concluded that it is possible to achieve the following through international bilateral agreements:

1. Importers can achieve a measure of supply assurance through bilateral agreements by negotiating a predetermined and guaranteed import level with an exporter or group of exporters. No individual importer dominates the market enough to make this an infeasible objective.
2. All exporters except the United States are small enough in the market and, in most cases, have sufficient control over market transactions to seek a substantial level of demand assurance through bilateral agreements. The primary constraint on the negotiated level of demand assurance is that most exporting countries are subject to supply variability, and the quantities negotiated would have to be

within a range that permits adjustment to weather-induced variations in output.

3. Given current world and U.S. domestic market characteristics, complete, or even substantial, coverage of U.S. exports through bilaterals is clearly impossible. As a residual supplier, there is no assurance that the United States can achieve either quantity or price stabilization through bilateral agreements. The U.S. domestic marketing system is not suited to accommodate large-scale government supply commitments to international bilateral arrangements.

Aside from the direct implications for market stabilization, a number of other factors need to be taken into account in evaluating the prospects for, and implications of, bilateral arrangements. One major implication is the impact on non-participating countries, particularly developing nations. If the major trading nations enter into agreements to cover normal levels of trade, then nonparticipating buying and selling countries will be forced into the more volatile and unstable residual market. Bilateral arrangements can also have a direct effect on U.S. consumers and farmers by exacerbating shifting relationships between livestock and grain prices.

Another important issue is market control. Aggressive entry into bilateral arrangements requires government control of both domestic and international marketing beyond that which exists or is likely to be acceptable to U.S. commercial agricultural interests. To date, the United States has entered into several bilateral understandings for the sale of agricultural products, ranging from those which do not have the force of agreement nor any supply assurance to those with somewhat more formalized arrangements.

A final issue is the relationship between bilaterals and other U.S. policies. Extensive entry into bilateral arrangements would be inconsistent with the basic long-term U.S. objective of seeking multilateral reductions in trade barriers and an open world trading system.

It is likely that the most promising use of bilaterals for the United States is in conjunction with market development programs. These could be short term and aimed at direct promotion of consumption in importing countries, or they could be long term and aimed at stimulating agricultural and industrial development within importing countries with a view toward long-term expansion of food import needs associated with income growth. This approach involves a much closer linkage than currently exists between those government officials and private organizations concerned with export market promotion and those concerned with economic development.

Comments by Jimmye Hillman: The paper by Nuttall and Sorenson calls attention to one of the most prevalent institutional forms of trade arrangements extant. While bilateral arrangements have not been historically a major device in the U.S. arsenal,

this country, because of economic and political determinisms, is being boxed into an accommodation with other countries in that respect. The United States, in short, can no longer ignore bilateralism, though the methods of implementing agreements will vary with its trading partners.

Nuttall and Sorenson have recorded the developments surrounding bilateral arrangements during recent years. Portions of their analytical framework relating to the agreements are, however, somewhat flawed. Little argument can be raised with such observations as: (1) major constraints still impede U.S. agricultural export flows, (2) an increasing portion of agricultural trade is outside the traditional General Agreement on Tariffs and Trade (GATT) negotiating procedures and can be dealt with only through country-by-country negotiations, and (3) major U.S. competitors exercise close government control over trading relationships.

The following questions may be raised about the above. If major trade constraints remain, are bilateral arrangements the only, or the optimum, mechanism to overcome them? Bilateralism raises a new set of constraints built around the multiplied bureaucracies which must be set up to deal with the many one-on-one situations which arise. Second, just because "major competitors do it," is that rational or efficient justification for the United States to follow suit? Finally, aren't bilateral agreements inherently and demonstrably unstable? This is implied by the shrinking of residual markets (those outside the bilateral arrangements) and the presumed decreasing elasticities of supply and demand, coupled with the instability of an increased portion of trade that is tied to politics. Moreover, it is unrealistic to attach significant meaning to the price factor, which is based on the residual market, when a large share of total world supplies is tied to bilateral agreements. (Witness the sugar situation in the early seventies.) It is refreshing that the authors come to this conclusion, though there is a flaw in the presentation.

The flaw in analytic methodology lies in the general thesis or presentation that residual demand and supply curves become more inelastic as bilateral quantities are tied up in one-on-one country arrangements. The authors are encouraged to reconsider their methodology and reconstruct the analysis with corrections.

Despite the flaw, the final portion of the paper comes to the proper conclusions relative to:

1. Stability--Bilaterals increase price instability.
2. Market development--Small country suppliers and consumers can use bilaterals more effectively than large ones.
3. Implications for nonparticipants--The picture is mostly bad.

General discussion: Comments revealed disagreements on the effects of bilateral agreements on world commodity trade. Morrow and Siamwalla disagreed that bilateral agreements do not affect the equilibrium price. Morrow argued that bilateral agreements will merely change trade flows without affecting prices or total world trade since importers can re-export excess supplies. Finally, Morrow felt that bilateral agreements tend to increase the sense of insecurity about the availability of world grain supplies, resulting in increased demand for additional agreements.

Relationships between Stockholding and Food Import Demand

by Daniel T. Morrow

Discussant:
Robert L. Thompson

This paper reviews several ways in which stockholding of grain, by the world as a whole or by individual countries, might influence longrun and shortrun import demand.

A strong theoretical argument can be made that the pattern of world grain stockholding, through its impact on the degree of world price variability, can have an impact on the longrun demand for imports. After reviewing the theoretical relationships between patterns of stockholding and price variability, the paper develops the hypothesis that price variability in the world grain market has a "ratchet effect" on effective rates of protection of the grain markets in importing countries, and, thus, tends to depress import demand in the long run. If true, exporting countries as well as importing countries would have an interest in greater world price stability.

Although the empirical relationship between the level of stockholding and world price variability can be reasonably well established for wheat, as summarized in the paper, convincing evidence has not been found for such a ratchet effect. The paper reviews the pattern of domestic support prices for wheat from 1963 to 1977 for 30 countries, but concludes that this provides no strong evidence that the price variability in the early seventies induced permanent real increases in domestic support levels. This illustrates the difficulty of investigating longer run changes in the structure of the world trading system.

The paper also considers three general propositions about the effects of stockholding decisions on year-to-year changes in import demand. First, few importing countries should use interyear stockholding rather than imports to help stabilize their domestic grain consumption. The paper summarizes four circumstances in which such stockholding would be justified, noting that more research in this area is needed to avoid simplistic and incorrect advice to importing countries on reserve stock policies. Second, among those few countries which might justifiably hold interyear stocks, there are only a few--the Soviet Union, India with respect to wheat, Indonesia with respect to rice, and China--whose grain economies are large enough so that their changes in stocks and changes in import demand have any noticeable impact on the world grain markets as a whole. More research on the stockholding behavior of these countries is needed. Regarding the Soviet Union, it is noted that the unwillingness to provide data on its stock

levels not only imposes a cost on the rest of the world but may also have disadvantages for the Soviet Union, since major exporters may not correctly anticipate needs and adjust their own stocks accordingly. In short, the Soviet Union may have to give up some of its ability to take the world market by surprise in order to enhance the reliability of that market.

A third general observation presented in the paper is that, in a situation of very tight world markets and high prices, importing countries as a whole may be induced to undertake stockholding as some protection against the risk that future opportunities to trade may be restricted by export controls. The possibility of such a panic market is worth understanding and trying to prevent.

Comments by Robert L. Thompson: This paper sets the stage for determining the relationship between stocks and import demand. The two are closely related. Morrow argues that high prices may increase protection through a ratchet effect, but there is no empirical test of this hypothesis. Rather than look at the percentage change in the national support price, the percentage change in net protection might be more useful. The ratchet effect may not be the only mechanism by which protection increases. There is a need to explain better the policy process which determines stock levels, as Morrow indicates, but the welfare effect is important. Although the welfare gains from price instability are small, the income transfers are large.

General discussion: Morrow agreed that the market effect is not the only mechanism by which protection increases, but stressed that it is the mechanism by which policy is made. He agreed with Thompson's comments about income transfers, but stated that the biggest transfer in the United States occurs within the Government budget.

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Thus, expenditure increases must be contained. Budget costs cannot be controlled if farm prices are allowed to rise enough to cover inflation. Price increases much smaller than past increases would control budget expenditures, or a nominal rise in agricultural prices may be possible if coupled with policy changes restricting production or the quantities which qualify for support.

All alternatives which can reduce EC budget costs also reduce subsidized exports and the protection of EC agriculture, thus easing tensions with EC trading partners. Countries outside the EC which export the products in which the EC has a surplus have a direct interest in the outcome of the Community's internal debate. The United States will be particularly interested because the EC is the largest market for U.S. agricultural exports. Any policy changes or reductions in price increases which adequately control the EC budget, however, may also be too restrictive on farm income and perhaps lead individual EC governments to return to national agricultural support.

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